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Kalmiopsis Wilderness
Watershed Analysis
~~Revision I~~

Version 1.2



Approved


Forest Supervisor
Siskiyou National Forest


Date

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INTRODUCTION

The Kalmiopsis Wilderness, located in Southwestern Oregon, encompasses 179,850 acres and is entirely in the Siskiyou National Forest. The major part of the Wilderness is in five watersheds, Upper Chetco River, Lower Chetco River, West Fork of the Illinois River, Illinois River below Briggs Creek and a Key Watershed, the Upper North Fork of the Smith River.

The Wilderness Act stipulates that wilderness is "Federal Land...which is...managed so as to preserve its natural condition and which generally appears to have been affected primarily by the forces of nature...."

The Kalmiopsis Wilderness was first designated as a Wild Area under the Secretary of Agriculture Regulation U-2 in 1946. The Wilderness Act of 1964 converted the Wild Area to Wilderness. The Endangered American Wilderness Act of 1978 added 102,950 acres, making its present size of 179,850 acres.

In addition to trails, access in the Kalmiopsis Wilderness is via existing primitive mining roads that were constructed in the 1930's well before the designation of the Wilderness by Congress. The Wilderness Acts noted above, specifically permitted the continued existence, perpetuation, and use of these roads. Though the roads are narrow, steep, and primitive in character, they are passable by 4-wheel drive vehicles, ATVs, and motorcycles. The roads are blocked by gates and closed to motorized public travel. However, they are available for motorized access through a Special Use Permit process.

The Kalmiopsis Wilderness is listed in the Record of Decision (ROD) and Environmental Impact Statement for Management of Habitat for Late Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl, as a Congressionally Reserved Area. As such the Standards and Guidelines for Congressionally Reserved Areas must be met first. Second, Riparian Reserve Standards and Guidelines apply and are added to the Standards and Guidelines of other designated areas.

The ROD requires a watershed analysis to address important conditions and processes prior to most activities in key watersheds on Federal lands. Watershed analysis is a dynamic process and sections will be updated as information is available. This limited analysis provides a basis for protecting the values of the Kalmiopsis Wilderness, and identifies activities which produce desirable watershed conditions. The analysis deals only with the areas of the watersheds that are not private land and within the Wilderness.

WATERSHED VALUES

The Wilderness Act defined 'wilderness' as an area "...to be affected primarily by the forces of nature with...man's work substantially un-noticeable...." (PL 88-577).

Management Direction is: to manage wilderness to ensure the human influence does not impede the free play of natural forces or interfere with natural successions in the ecosystems and to ensure that each wilderness offers outstanding opportunities for solitude or a primitive and un-confined type of recreation; manage wilderness as one resource rather than a series of separate resources (FSM 2320). Where there are alternatives among management decisions, wilderness values shall dominate over all other considerations except where

limited by the Wilderness Act, subsequent legislation, or regulations (FSM 2320.3).

The Siskiyou National Forest Land and Resource Management Plan also provides management direction for the Kalmiopsis Wilderness. Management goals for the area include preserving the wilderness character and maintaining the natural conditions; assuring that changes which take place in the natural conditions are the result of natural rather than human processes; and provide primitive and semi-primitive non-motorized recreational opportunities. (LRMP IV-69).

KEY QUESTIONS

1. What is the effect of the use of Prescribed Natural Fire on the Kalmiopsis Wilderness?
2. What is the effect from the use of the primitive roads?

The difference between Prescribed Natural Fire and Human-caused fire is that the natural fire is started from a natural cause. The most common cause is lightning. Human-caused fires are just as the name implies, started by humans and have no agency management objective when they are started.

PROCESSES and ELEMENTS

PROCESSES:

Fire Ignitions
 Fuel buildups
 Plant growth and wildlife habitat changes
 Water flows, landslides, and fish habitat

ELEMENTS:

Fire Natural
 Human
 Different Seral Stages
 Riparian Areas
Ownership
Access

PAST PROCESSES:

Ignitions - Before fire suppression, fires burned as long as they were not threatening any personal property. As our society became more organized and the forests were viewed as resources or commodities, suppression of wildfires became a priority to protect the commodity value. Over the past approximately seventy-five years, the suppression action has been more aggressive.

In addition to the natural fires, humans used wildfire to meet their needs. Prehistoric fire use was to clear the undergrowth for hunting, making travel easier or the gathering of either basket material or food. In more recent history, burning of the forest provided improved habitat for game animals, grazing for livestock, made travel easier, cleared vegetation for mining purposes, and provided food and building materials. (Fire in America, 1985)

Fuel Buildups - Records, prior to 1910, are sketchy concerning the frequency of fire. It is assumed that lightning fires and early human-caused fires shaped the ecosystems. Fuel buildups depended on the frequency of fire. Fire frequency for the Kalmiopsis Wilderness, then as now, was generally in the 40 to 80 year range.

Plant Growth and Wildlife Habitat Changes - The plant and animal responses to the fire frequency shaped the diversity of the ecosystem. The south and west facing slopes tend to be hot and dry and the north and east facing slopes were cooler. This created a vegetative type-change which had a direct influence on the frequency and effect of fires. The southern slopes had younger trees and a higher hardwood/shrub component. The northern slopes had older-forest trees.

Water Flows, Landslides, and Fish - The fire frequency determined the type and amount of vegetation. The water flows, landslides, and the effect on the fisheries was directly effected by amount and type of vegetation on a given area. Riparian areas tended to be moist and cool which directly effected the fire intensity. This allowed the vegetation to provide shade and large woody material to the stream courses.

Prior to designation as a wilderness, miners would occasionally build primitive roads to access claims, one of which is now been patented to private land status. There is no evidence that the few roads still remaining had a permanent effect on water flow, landslides, or fish.

PRESENT PROCESSES:

Ignitions - The Kalmiopsis Wilderness has a history of large lightning caused fires in addition to those attributed to human causes. Significant lightning caused fires include the 96,540 acre Silver Fire of 1987 in which 42,232 acres were in the Wilderness; the 34,627 acre Cedar Camp Fire and the 5,800 acre Nome Creek Fire of 1938, and the 5,300 acre Collier Creek Fire of 1924.

The recorded frequency of lightning fire occurrence in the Kalmiopsis Wilderness is relatively low; 0.58 lightning fires per year. A review of fire records indicates the occurrence of lightning fires trends toward infrequent multiple-fire episodes. Lightning fire occurrence has been concentrated in the eastern portion of the Wilderness. An analysis of 50 years of lightning fire occurrence (1940-1989) shows that 29 lightning fires have been recorded in the Wilderness, with 13 of these lightning fires occurring during the 20 year period from 1970 through 1989. A storm on July 31, 1980, was responsible for 6 of the recorded lightning fires. Lightning activity on July 29 and 30, 1985, accounted for 2 more of the lightning fires. No lightning fires were recorded in the Wilderness in the long-to-be-remembered 1987 fire season. The Silver Fire started outside the Wilderness and burned into it.

Fuel Buildups - Fire has been the main disturbance, both from natural causes and fires from humans. The human-caused fires in recent history, were either deliberately set to clear the land for mineral prospecting or escaped through negligence. Fire has created diversity in the landscape. Forests of different seral stages create a mosaic of textures and contrasts.

Decreased fire frequency can result in a variety of associated changes in stand structure, fire intensity, patch sizes and the amount of large woody material found on the site. Stand structure changes to a more dense under story with a higher percentage of shade tolerant trees in the over story. The increased

fuel buildups from fire suppression activities generally results in more high-intensity, stand replacing fires, and a reduction in large woody material.

Increased fuel buildups of understory and overstory vegetation alters fire behavior. If the infrequent disturbance patterns continue, stand replacement fires will be less frequent than the historical patterns. However the fires will usually be larger and more intense.

Plant Growth and Wildlife Habitat Changes - The forested portion of the Kalmiopsis Wilderness watersheds has a mixture of conifers and hardwoods with a ground cover of shrubs and forbs.

Forest stands have been grouped into "plant associations", combinations of plant species that indicate the area's site conditions including soil type, site class, and fire frequency.

Each plant series has vegetation in a range of classes. Old growth, mature, young conifer, hardwoods, shrubs, and grasses/forbs occur in a variety of patch sizes. The plant series have different disturbance frequencies and respond differently to changes in disturbance agents.

Plant communities of the Kalmiopsis Wilderness watersheds are a patchwork of different age classes. Over 80 years, a majority of the landscape in the Wilderness has been burned by wildfires of varying sizes, creating the patchwork mosaic.

Port-Orford cedar (*Chamaecyparis Lawsoniana*) has been affected by disease. Although it is a small component of the minority of forest stands it appears throughout the Kalmiopsis Wilderness, it is more concentrated on serpentine soils. The fungus *Phytophthora lateralis* infects Port-Orford cedar roots, quickly killing the tree. Mortality is high in riparian areas where the water-borne spores have ready access to cedar roots.

A fire disturbance may include a variety of burn intensities in response to moisture regimes, fuel buildups, micro-climates, and topography. The result is a mosaic of burn intensities and residual vegetation. In the Kalmiopsis Wilderness, moist conditions are found in drainages and north-facing slopes. Lightning tends to strike high, dry ridgetops starting fires that burn to create a pattern of early seral stages on ridgetops and mid-slopes with mature and old-growth stands in the drainages. Of the area burned in the Silver Fire of 1987, 60 percent of the area was burned with low intensity fire, 30 percent was burned with moderate intensity and 10 percent was burned with high intensity (Silver Fire FEIS and Siskiyou National Forest LMP).

Water Flows, Landslides and Fish - The area is important for anadromous fish habitat. Fire has a direct impact on the quality and quantity of fisheries.

The present canyons were eroded as the land rose relative to sea level. Ancient landslides were many times larger than those of present day. Precipitation, stream cutting of canyons, and land-sliding continue at a lesser rate today.

Active landslides today are most common in inner gorge areas, where ground-water from higher elevations becomes concentrated above steep slopes adjacent to major streams and along the lower reaches of small tributaries. These disturbances have been frequent in the Kalmiopsis Wilderness. Landslide

potential is increased where fire kills vegetation, thereby decreasing evapotranspiration and increasing ground-water.

The primitive roads have become part of the trail system. Motorized use connected for present-day mining is controlled through the approval of mining plans. There is one parcel of private land in the Wilderness that one of these roads accesses. The Forest Service is presently discussing, with the owner, the purchase of the property. The sale is, in part, contingent upon motorized access to evaluate the fair market value. This use, with prudent mitigation, will not effect the water flows, landslides, or fish.

DESIRED FUTURE CONDITIONS

Ignitions - Allow natural ignitions to play a key role in shaping the ecosystem. Suppress human-caused and natural ignitions that are determined not to be candidates for Prescribed Natural fire consideration, using the most cost effective methods commensurate with the resources values. In this case, the resource value is wilderness. Wilderness suppression guidelines are outlined in the Siskiyou National Forest Fire Management Action Plan.

Fuel Buildups - Since the wilderness is a place where the forces of nature determine the landscape, fuel buildups and consumption will be the result of natural processes.

Plant Growth and Wildlife Habitat Changes - Since the wilderness is a place where the forces of nature determine the landscape, plant growth and wildlife habitat will be the result of natural processes.

Water Flows, Landslides, and Fish - With the exception of the primitive roads, the Kalmiopsis Wilderness is a place where the forces of nature determine the landscape, water flows, landslides, and fish habitat.

Maintain stability of primitive roads and all land in the Wilderness will be publicly owned.

Large wood already in the channel will continue to move downstream. Large wood will continue to be added to the system as part of the natural process.

Little riparian canopy was killed by the Silver Fire. Data compiled from the Silver Fire monitoring show that stream temperatures in the fire area decreased. Natural fires will have little effect on stream temperatures.

Sediment delivery from natural disturbances is expected to continue at present rates. Water clarity is expected to remain excellent in future decades.

DESIRED TRENDS AND RECOMMENDED PROJECTS

The desired trend is to maintain the natural beauty of the Kalmiopsis Wilderness with natural fire being a force of nature that shapes the landscape which results from the free play of natural forces. It is desirable to maintain the established drainage of the primitive roads and that all lands in the Wilderness be in public ownership.

Recommended Projects

By implementing a Natural Fire Plan, the agency would allow fire to take a more natural role in the ecosystem as required by agency policy and the intent of the Wilderness Act of 1964. The Forest Service acting under the guidance of the Organic Act was actively protecting the resources under their protection. This was in response to the social views of Forests being made up of commodities that should be protected from damage. In this case the damaging agent was fire. Active suppression action was taken to put out every fire. With the implementation of the Wilderness Act of 1964 the land designated as wilderness was looked at in a different way. No longer was the resource a commodity but a Value. In wilderness, the value was its untouched nature. The agency now had a different role to play in the protection of a resource. Long standing views of fire protection may need to be changed. Instead of imposing suppression action on the fire in the wilderness, the agency can take management actions to allow fires to play an important role in shaping the ecosystems. The most important part of this process is to determine which fires would meet the objectives of the Kalmiopsis Wilderness and which would pose a threat to resources exterior of the Wilderness boundary. The land manager could then make a decision on which way to deal with a fire. Due to agency policy and the liability of those that started the fire, if a fire should escape the Wilderness boundary, all human-caused fires would be declared wildfires.

The drainage of primitive roads should be maintained by users for which the roads were permitted. The Forest Service should pursue any private lands that become available for acquisition.

MONITORING

As prescribed by the Siskiyou National Forest Natural Fire Guidelines and the Siskiyou National Forest Land and Resource Management Plan.

REFERENCES

Siskiyou National Forest Land and Resource Management Plan
Fire in America, 1985

Kalmiopsis Wilderness
Watershed Analysis
Iteration 1.1

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